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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/730,767

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Shingo Kiuchi

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ALPINE/BHGL  
P.O. Box 10395  
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EXAMINER

WOZNIAK, JAMES S

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/730,767	<b>Applicant(s)</b> KIUCHI ET AL.	
	<b>Examiner</b> JAMES S. WOZNAK	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,11-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,11-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the office action from 1/28/2008, the applicant has submitted an a request for continued examination, filed 3/17/2008, amending the independent claims to incorporate claims 2, 9 and 16 , while arguing to traverse the art rejection based on the limitations of previous claims 2, 9, and 16 (*Amendment, Pages 6-8*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

### ***Response to Arguments***

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to amended independent **claims 1, 8, and 15**, the applicant argues that the prior art of record, either individually or in combination fails to teach “a plurality of pieces of speech data whose start positions of non-speech regions differ are generated from the speech data for which speech recognition is to be performed by sequentially shifting the start position of the non-speech region from the start position of the speech region back to a position preceding by a predetermined time” (*Amendment, Page 6*). In support of such arguments, the applicant alleges that:

a.) Fujii et al (*U.S. Patent: 4,885,791*) overcomes varying noise in speech recognition by utilizing multiple speech beginning points, but is silent on how to specifically determine these points (*Amendment, Pages 6-7*);

b.) Bi et al (*U.S. Patent: 6,324,509*) does not describe sequentially shifting backwards because Bi only determines one actual starting and one actual ending point (*Amendment, Pages 7-8*); and

c.) the examiner has not articulated any rationale to combine the prior art of record (*Amendment, Page 7*).

In response to argument a., the examiner notes that the applicant is correct in stating that Fujii teaches creating multiple possible speech periods for speech recognition (*Col. 8, Lines 11-49; and Fig. 7, Elements 43 and 45*). These generated possible speech periods would include multiple starting points to compensate for the ambiguity associated with unvoiced sounds (*Col. 8, Lines 29-35*). Thus, Fujii does disclose the concept of generating a plurality of speech segments having a plurality of starting points for speech recognition, but as is noted by the applicant, does not specifically suggest that these possible periods are created by sequentially shifting the start position back to a position preceding by a predetermined time. This limitation is taught by the Bi reference, and thus, it is the combination of Fujii and Bi which teaches said limitation. The applicant, however, has argued that Bi does not teach the aforementioned limitation (*argument b*).

In response to argument b., the examiner notes that on the path to determining one actual starting point, Bi considers multiple starting points by sequentially shifting back from a determined starting point to a predetermined time. More specifically, Bi shows that different

possible starting points from a beginning point are sequentially determined by shifting backwards as is disclosed by Figs. 2 and 3 and their associated descriptions (*Col. 5, Lines 13-30; Col. 6, Lines 56-60; and Col. 7, Lines 1-24*). In Fig. 3, Bi shows a region from pre\_start back to start that is sequentially searched backwards in checking possible starting boundaries. Bi also states that a speech data pointer is decremented as this look back search is performed until a threshold gap limit is reached (*Col. 5, Lines 13-30; and Col. 6, Line 56- Col. 7, Line 24*). It can be seen by one of ordinary skill in the art then, that Bi teaches the concept considering multiple starting points by shifting backwards from a beginning until a predetermined time limit is reached. In Fujii, these possible periods are submitted to a speech recognizer for determining a most probable result (*Col. 8, Lines 11-49*). Thus, since Bi provides Fujii with a practical, easily implemented way of obtaining the possible periods that can be easily implemented in a real-time processor (*Bi, Col. 5, Lines 24-30*) by shifting backwards, it is the combination of the prior art of record that teaches the aforementioned claim limitation. The examiner also notes that Wu et al (U.S. Patent: 6,216,103) teaches a similar search algorithm that sequentially searches backwards from a segment of reliable speech to a predetermined time in order to examine multiple starting times. This reference has been included in the attached PTO-892 for the applicant's consideration.

In response to argument c., the examiner notes that motivation has been provided and is explicitly provided by the prior art references themselves (*See Prior Office Action, Pages 6-8*). In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (*Amendment, Page 8*), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

long as it takes into account *only knowledge which was within the level of ordinary skill at the time the claimed invention was made*, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Thus, the applicant's arguments have been fully considered, but are not convincing.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1, 3-8, 11-15, and 17-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al (*U.S. Patent: 4,885,791*) in view of Keiller (*U.S. Patent: 6,975,993*) and further in view of Bi et al (*U.S. Patent: 6,324,509*).

With respect to **Claims 1 and 8**, Fujii discloses:

Generating, from speech data for which speech recognition is to be performed, a plurality of pieces of speech data whose start positions of non-speech regions differ (*generating plural possible speech periods having different starting boundaries including varying amounts of unvoiced sounds and noise, Col. 8, Lines 11-49*); and

Performing speech recognition using each of said pieces of speech data to obtain a plurality of recognized results (*performing pattern matching using the plural possible speech segments, Col. 8, Lines 11-49*).

Although Fujii discloses the generation of a plurality of possible speech segments for recognition, which each have different starting boundaries including varying amounts of unvoiced sounds and noise and performing speech recognition using those segments, Fujii does not teach providing a speech recognition result using a metric based on the identified most numerous recognized result from among a plurality of obtained recognized results. Keiller, however, recites a plurality of recognition engines utilizing such a metric (*most commonly occurring word or words as recognition result, Col. 21, Lines 1-11*).

Fujii and Keiller are analogous art because they are from a similar field of endeavor in speech recognition systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fujii with the recognition means utilizing the aforementioned scoring metric as taught by Keiller in order to provide a more efficient multi-engine speech recognizer capable of providing a most likely result (*Keiller, Col. 2, Lines 4-8; and Col. 21, Lines 1-11*).

Although Fujii further discloses predetermined speech period offset times to include varying amounts of non-speech data (*Col. 10, Line 67- Col. 11, Line 20*), Fujii does not specifically suggest that this plurality of segments is obtained by shifting backwards. Such a backward shift for determining a starting point (*or multiple starting points in the case of Fujii*) of a speech data segment is well known in the speech processing art however, as is evidenced by the Bi reference (*Col. 5, Lines 13-30*).

Fujii, Keiller, and Bi are analogous art because they are from a similar field of endeavor in speech recognition systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Fujii in view of Keiller with the concept of backwards searching (shifting) taught by Bi in order to provide a well-known means of achieving the multiple speech data periods in Fujii that can be easily implemented in a real-time processor (*Bi, Col. 5, Lines 24-30*).

With respect to **Claims 3, 11, and 19**, Bi further shows a speech segment endpointer, which determines a speech starting point, as part of a speech recognizer (*Fig. 1, Element 22*).

With respect to **Claims 4, 12, and 20**, Bi discloses the means for determining a speech segment starting point in a speech recognizer, as applied to claim 3, while Fujii discloses that the period of this input segment can be varied to account for an uncertain amount of non-speech data, as applied to Claim 1. Since the period of the speech data is varied only based on an uncertain amount of non-speech data, the speech region would be the same for the plurality of generated segments in Fujii, and thus, identical to the first speech data starting point determined by the endpointer taught by Bi.

With respect to **Claims 5, 13, and 17**, Fujii further discloses an A/D conversion of an input speech signal at a predetermined sampling frequency (*Col. 8, Lines 14-16*), while Bi discloses an circular buffer that stores a sequence of speech data frames in order (*Col. 5, Lines 13-30*). Bi also discloses changing a buffer reading position to determine a speech data starting point, as applied to Claim 2.

With respect to **Claims 6, 14, and 18**, Fujii discloses that individual speech samples are obtained at a rate of 8kHz (*Col. 8, Lines 14-16*).



With respect to **Claim 7**, Keiller discloses the multi-engine speech recognizer as applied to Claim 1.

**Claim 15** contains subject matter similar to Claims 7 and 8, and thus, is rejected for the same reasons.

### ***Conclusion***

5. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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